

IPS™ 150

INDUSTRIAL POWER AMPLIFIER

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PEAVEY
ARCHITECTURAL ACOUSTICS®



Intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

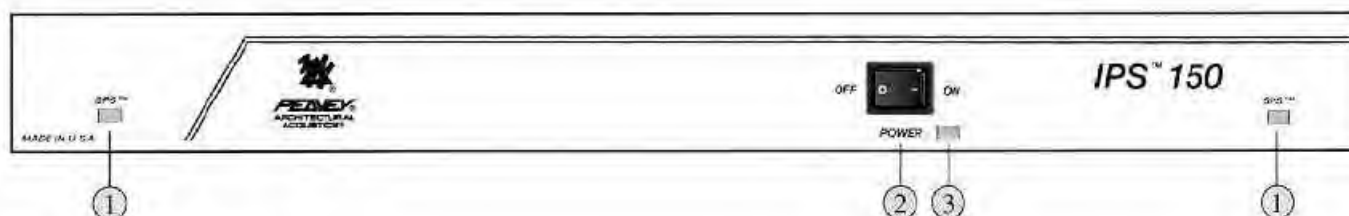


Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION: Risk of electrical shock – DO NOT OPEN!

CAUTION: To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

WARNING: To prevent electrical shock or fire hazard, do not expose this appliance to rain or moisture. Before using this appliance, read the operating guide for further warnings.



FRONT PANEL

SPS™ ACTIVE LEDS (1)

These illuminate when SPS compression is taking place in the respective channel. SPS compression is an extremely valuable feature to help keep each channel from clipping and distorting.

SPS™ COMPRESSION

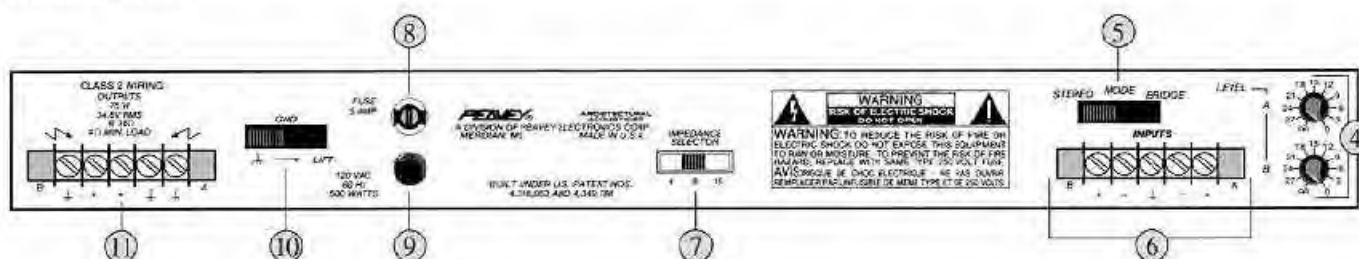
Peavey's patented SPS compression system is activated by a unique circuit that senses signal conditions that might overload the amplifier and activates compression (reduces the amp gain) when clipping is imminent. The threshold of compression is clipping itself, and no specific threshold control is used. This technique effectively utilizes every precious watt available for the power amplifier to reproduce the signal, and at the same time prevents damage to the speakers due to the absence of power amp clipping. The SPS system is an automatic, hands-off approach to the problem of power amplifier clipping. SPS is designed to maximize the dynamics available from the amplifier within its power output capability regardless of power supply/AC line voltage variations or load impedance selection. The SPS compression system on the IPS™ 150 cannot be defeated externally, as is possible with many other Peavey power amplifiers where a defeat switch is provided. Because of the power levels involved, the SPS compression system is almost a must to prevent clipping and overload. However, if it is desirable to defeat the SPS system for any reason, we suggest the unit be taken to a qualified Peavey Service Center where they can defeat the system internally. Under no circumstances should any nonqualified person attempt this modification.

MAINS POWER SWITCH (2)

A heavy duty rocker switch used to turn the unit "on" or "off".

POWER LED (3)

This illuminates when AC mains power is supplied to the amplifier and the main power switch is turned on. If either channel were to experience fault conditions, or if the rear panel fuse were to blow, this LED will go out indicating such conditions exist.



REAR PANEL

CHANNEL A & B INPUT LEVEL CONTROL (4)

We have provided input level controls for each channel to allow the user to set different signal levels in each channel which might be necessary in a two zone distribution system. These controls are actually input attenuators with the detent and labeling providing a one dB attenuation per detent, and is quite accurate between the ranges of -3 to -21. Several comments must be made about input attenuators. Maximum input gain (minimum sensitivity rating) is achieved at the full clockwise setting, and this setting yields maximum mixer/system headroom. A setting of less than full clockwise will yield lower system noise at the expense of mixer/system headroom. Full clockwise calibration is 0 dBV (1.0 V RMS), which is the input signal level necessary to attain the full available output power rating.

MODE SWITCH (5)

This switch is used to select either STEREO (dual channel) or BRIDGE mode of operation. Care should be exercised whenever the BRIDGE mode is selected. Accidental selection of this mode could damage loudspeakers. The BRIDGE mode will be covered in greater detail later in this manual.

INPUT BARRIER STRIP (6)

This strip contains the inputs of both channels A & B. The center screw of this 5 barrier strip is amplifier ground. The positive inputs are the end screws labeled "+" and the negative inputs are the next screws in labeled "-". Both channel inputs are fully electronic balanced using operational amplifier technology. This arrangement offers excellent common mode rejection for optimum hum and noise performance when wired for balanced operation. For balanced feeds, using two conductor shielded cables, connect the positive "wire" to the respective "+" screws, the negative "wire" to the respective "-" screws, and finally, both shields to the ground center screw. For unbalanced feeds, using single conductor shielded cables, connect the positive "wire" to the respective "+" screws, and both shields to the ground center screw and also to both "-" screws. A diagram is provided later in this manual showing this wiring.

IMPEDANCE SELECTOR SWITCH (7)

This selector switch is a 3-position type allowing the unit to be converted to either a 4 ohm, 8 ohm, or 16 ohm amplifier. This selection switch is actually changing electrical "taps" on the specially designed toroidal power transformer and thereby selects three different internal "rail" voltages. This feature is not found on many power amplifiers, and it makes the IPS 150 a very unique and flexible unit, permitting it to be used with virtually any impedance loudspeaker load. When a particular impedance is selected (for example, 8 ohms), the internal power supply voltage and limiting circuits are set to drive optimally an 8 ohm load per channel (or a 16 ohm bridge load). A more thorough impedance discussion will follow in the speaker outputs section. When using this switch, two important facts must be considered: **FIRST, NEVER CHANGE SWITCH POSITIONS WITH THE POWER APPLIED TO THE IPS 150;** the instantaneous charging currents can cause the switch to arc and this could degrade the switch contacts to where they could fail. **SECOND, SINCE THIS SELECTOR SWITCH IS A SLIDER TYPE, ONE MUST BE CERTAIN THAT IT IS "SLID" INTO THE PROPER POSITION.** This is particularly critical in the center position (8 ohms) where a slight offset from center could cause the switch contacts to not "make" properly. If the switch is positioned far from center, but not all the way to either side, it is possible to lose power completely on the amp or have only one of the two switch contacts "make." This can cause severe power transformer overheating and possible failure!

FUSE (8)

The fuse is located within the cap of the fuse holder. If the fuse should fail, **IT MUST BE REPLACED WITH THE SAME TYPE AND VALUE IN ORDER TO AVOID DAMAGE TO THE EQUIPMENT AND TO PREVENT VOIDING THE WARRANTY.** If the amp repeatedly blows fuses, it should be taken to a qualified service center for repair. **WARNING: THE FUSE SHOULD ONLY BE REPLACED WHEN THE POWER CORD HAS BEEN DISCONNECTED FROM THE MAIN POWER SOURCE.**

MAINS POWER SOURCE (120 V products only) (9)

The IPS 150 is fitted with a heavy duty #18 AWG 3 conductor line cord and a conventional AC plug with a ground pin. It should be connected to an independent mains circuit capable of supporting at least 15 AMPS continuously or greater. This is particularly critical for sustained high power applications when two or more IPS 150's are employed on the same circuit. If the socket used does not have a ground pin, a suitable ground lift adaptor should be used and the third wire grounded properly. **Never break off the ground pin on the IPS 150.** The use of extension cords should be avoided but, if necessary, always use a 3-wire type extension cord with at least a #16 AWG wire size. The use of lighter wire will severely limit the power capability of this amplifier. Always use a qualified electrician to install any necessary electrical equipment. To prevent the risk of shock or fire hazard, always be sure that the amplifier is properly grounded.

GROUND LIFT SWITCH (10)

This switch is used to disconnect the IPS 150's "signal ground" (both input and output) from the "chassis ground." Chassis ground is the chassis itself, which is electrically grounded through the rack mounting screws to the external rack system and through the mains line cord via the large ground pin to the mains ground. It is often advantageous to "lift" the signal ground from chassis ground to eliminate a "ground loop" which has caused unwanted ground current in

the signal cables between the external preamp and this power amplifier. Such conditions can create excessive hum levels in the power amplifier output and render the system useless in low level applications. In this case "lifting" the ground should solve this hum problem. Ground lift is selected when the switch is in the right or "LIFT" position. If lifting the ground does not eliminate a particular hum problem, then we recommend you defeat the ground lift feature. Please note that using this ground lift feature still leaves the chassis itself grounded electrically through the mains line cord. Having the chassis grounded avoids any possibility of an electrical shock or a fire hazard. This ground lift feature should never be confused with the practice of "floating" the large ground pin at the AC mains receptacle to eliminate a ground loop. Floating the ground pin on any electrical equipment is just asking for trouble!!!

OUTPUT BARRIER STRIP (11)

This strip contains the outputs of both channels A & B. These screws are arranged so as to provide separate feeds from each channel or to provide bridge mode operation from two adjacent screws. There are screws for each channel output labeled "+", and each channel internal ground labeled with a ground symbol. The remaining fifth screw is a chassis ground terminal labeled with a chassis ground symbol. This screw can be used to provide a ground for external equipment. The chassis ground screw should never be used as a common channel output connection. Also, one should never connect either internal ground screw to the chassis ground screw. If connected, this will defeat the ground lift feature of the amplifier.

DUAL CHANNEL OPERATION

Each channel of the IPS 150 is rated at 75 W RMS into 4, 8, or 16 ohms depending upon the impedance selector switch setting. As such, separate loudspeaker loads can be connected to the output terminals of each channel. The minimum parallel speaker load for each channel should be no less than the Selector Switch Setting (SSS). Operation at loads above the SSS are no problem except for the resulting available output power reduction, and open circuit conditions on either or both channels can always be considered safe. However, sustained operation at loads below the SSS could result in temporary channel shutdown do to the thermal limits and/or the amplifiers internal fault circuitry. Additionally, sustained dual channel operation at loads below the SSS will generally cause the mains fuse to fail.

BRIDGE MODE OPERATION

When a two-channel amplifier is operated in the BRIDGE mode, it is converted into a single channel unit with a POWER RATING equal to the sum of both channels' power ratings, at a LOAD RATING of twice that of the single channel rating. In this case the IPS 150 is rated at 75 W RMS per channel into 4 ohms with the impedance selector switch set at 4 ohms. Thus the BRIDGE RATING is 150 W RMS into 8 Ohms (minimum load). Bridge mode operation is accomplished by placing the mode switch in the "BRIDGE" position, connecting the loudspeaker load between the "+" screw output terminals of each channel, and then using channel A as the input channel. All channel B input functions are defeated, and they serve no purpose in bridge mode.

70 VOLT DISTRIBUTION SYSTEMS

A popular application for BRIDGE mode operation is to drive sound distribution systems in very large public address applications. In this mode, the IPS 150 can actually drive 70 volt systems directly without using large and heavy output transformers. The primary advantage of such an approach is cost. 70 V distribution systems are very common where large numbers of relatively small loudspeakers are used for BACKGROUND MUSIC AND PAGING. Such a system requires the use of 70 volt TRANSFORMERS at each speaker. The IPS 150 is unique here because when the 16 ohm impedance setting is selected, the unit delivers exactly 70 volts in bridge mode to a 150 W RMS 70 volt system load (approximately 32 ohms). This makes the IPS 150 an ideal choice for small or medium-sized distribution systems.

25 VOLT SYSTEMS

Although not related to bridge mode operation, the IPS 150 can also drive 25 volt distribution systems directly. 25 volt systems are not as popular as 70 volt systems, but they are still in use as a lower cost alternative. The IPS 150 will deliver 25 volts per channel at 75 W RMS when the 8 ohm impedance is selected.

INSTALLATION AND CONNECTION

The Peavey IPS 150 commercial series power amp is designed for durability in commercial installations and has the quality of performance required in studio and home applications. The unit is a standard rack-mount configuration that

stands 1 7/8" high and is cooled by convective air. All the input and output connections and controls are on the back panel. The front panel contains only the mains power switch and LED power indicator, and the dual SPS activation LED indicators.

INDUSTRIAL AND COMMERCIAL INSTALLATIONS

For commercial and other installations, where sustained high power operation is required, the IPS 150 should be mounted in a standard 19" rack with at least one rack space between each amp in the stack. If multiple IPS 150's are stacked on top of one another, the upper units will be heated by the lower units. An adequate "COOL" air supply (air that is not preheated by other equipment) must be provided for each amplifier when rack-mounted. If cooling is inadequate due to preheated air, or a reduction of air flow occurs due to blockage of the amplifier inlet/outlet ports, or if the amp is severely overloaded or shorted, the unit's thermal sensing system may cause temporary shutdown of that particular channel. This is indicated by a loss of signal in that channel. Depending upon available cooling air, operation should be restored in that channel relatively quickly. In any event corrective action should be taken to determine the cause of the thermal shutdown. If the unit is not severely overloaded or shorted, then steps must be taken to provide a cooler environment for all the amplifiers. As a general rule, the cooler electronic equipment is operated, the longer its useful service life.

STUDIO AND HOME INSTALLATION

In most low to medium power applications, the IPS 150 can be mounted in any configuration. It is desirable for, if at all possible, the unit be located at the top of an equipment stack. This will prevent possible overheating of any sensitive equipment by the hot air rising from the power amplifier. As a general rule, most home and studio requirements should never cause a thermal shutdown of either channel; however, if it does, this may indicate that you have not taken the necessary steps to provide adequate cooling. Remember, closed up in a cabinet, the IPS 150 will have severe cooling problems, even at low power levels. Again, inadvertent short circuit or sustained overloaded usage could also cause temporary thermal shutdown.

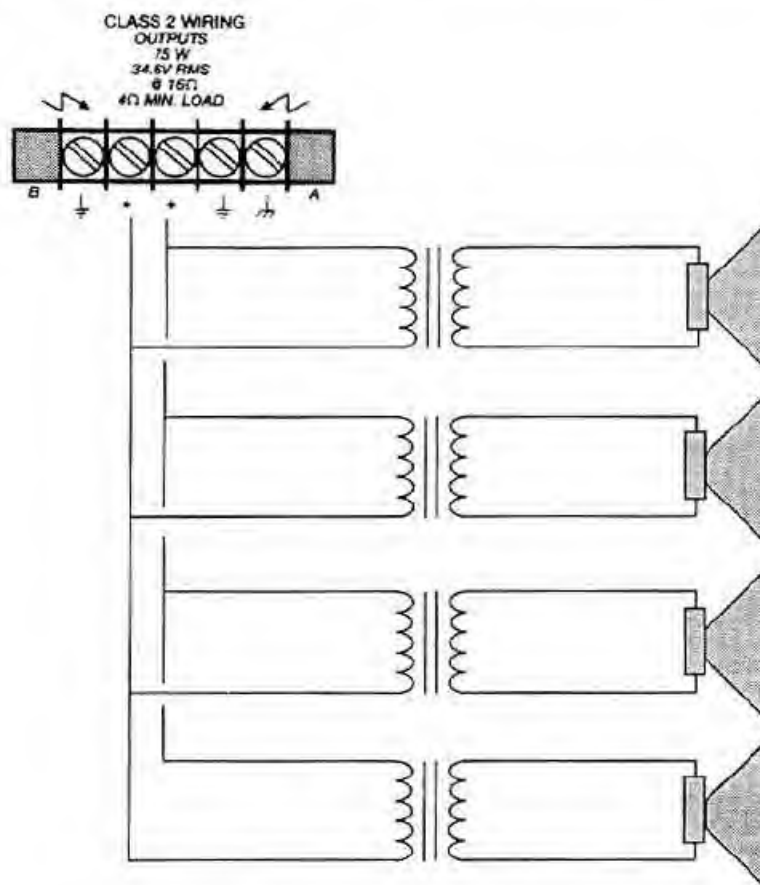


Fig. 1 70V Constant Voltage Distribution System

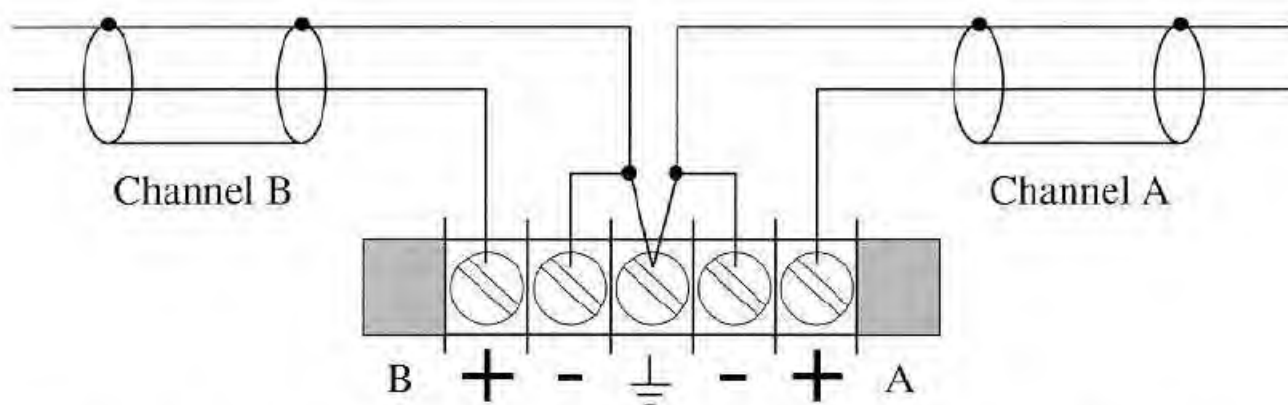


Figure 2: Unbalanced Input Connection – Single Conductor Shielded

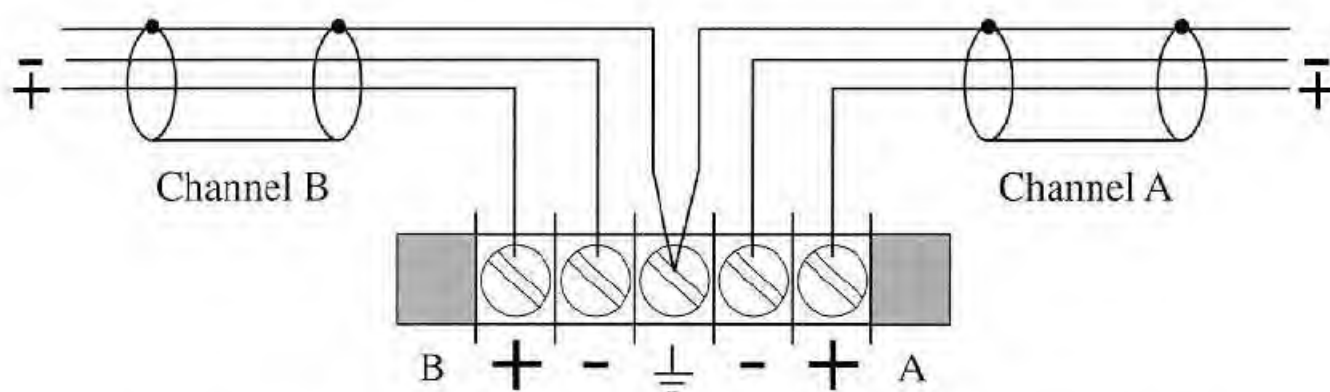
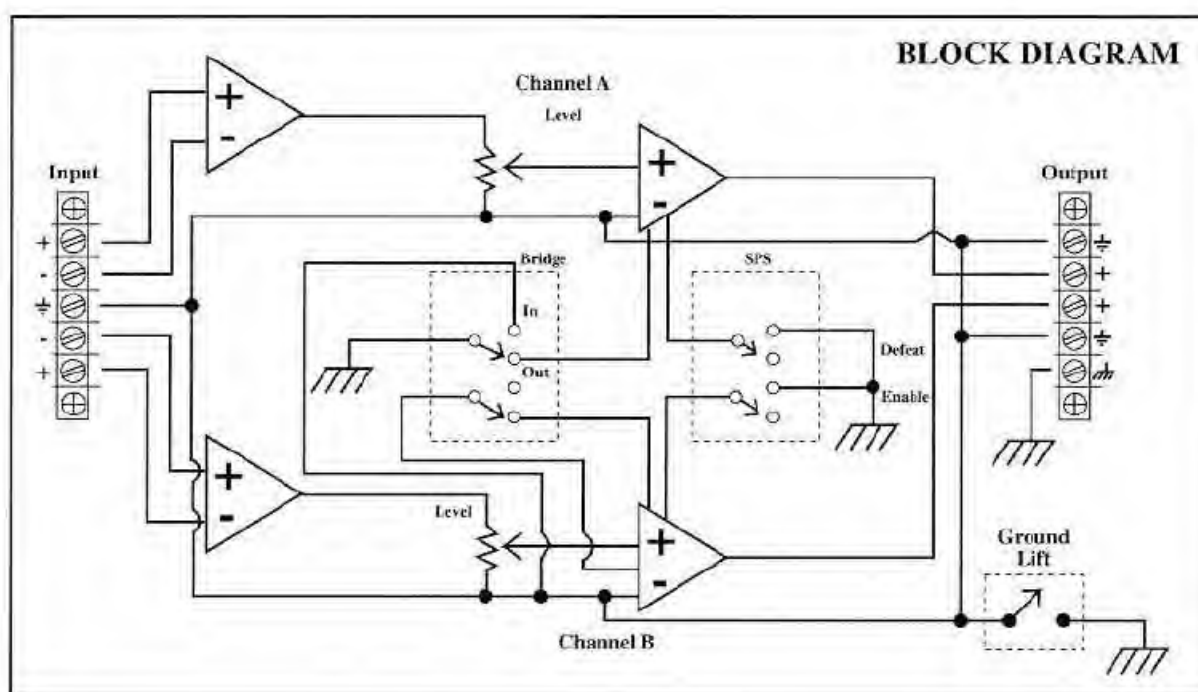


Figure 3: Balanced Input Connection – Two Conductor Shielded





Features and specifications subject to change without notice

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